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## Core domains of shared decision-making during psychiatric visits: Scientific and preference-based discussions

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### Abstract

Shared decision-making (SDM) is imperative to person-centered care, yet little is known about what aspects of SDM are targeted during psychiatric visits. This secondary data analysis (191 psychiatric visits with 11 providers, coded with a validated SDM coding system) revealed two factors (scientific and preference-based discussions) underlying SDM communication. Preference-based discussion occurred less. Both provider and consumer initiation of SDM elements and decision complexity were associated with greater discussions in both factors, but were more strongly associated with scientific discussion. Longer visit length correlated with only scientific discussion. Providers' understanding of core domains could facilitate engaging consumers in SDM.

### Keywords

Shared Decision-Making; Psychiatric Consultation; Mental Health; Person-Centered Care; Consumer Preference

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## Introduction

Shared decision-making (SDM) has become a central tenet of recovery and person-centered care delivery methods in mental health (Substance Abuse and Mental Health Services Administration, 2010). SDM is a collaborative communication process in which health decisions are made jointly by health care providers and consumers of health care services (Légaré, Turcotte, Robitaille et al. 2012). This practice is particularly desirable for preference-sensitive decisions (where there is more than one viable option for a given consumer that should be tailored to his/her preferences) requiring expertise from both parties: providers' scientific- and clinically-based knowledge and consumers' values and personal experiences with treatment options (Légaré and Witteman 2013; Veroff, Marr, Wennberg 2013). Accordingly, it is important for providers to 1) invite the consumer to participate in conversations around treatment decision-making; 2) provide evidence-based treatment options, ensuring consumer understanding; and 3) elicit and incorporate the consumer's preferences in the decision-making (Légaré, Turcotte, Stacey et al. 2012; Makoul and Clayman 2006).

In order to establish optimal treatment plans through SDM, one of the participants (either the provider or the consumer) needs to initiate a discussion of options (Makoul and Clayman 2006; Tai-Seale, Foo, Stults 2013). Although people with a mental illness have strong desires for involvement in decision-making (Hamann et al. 2011; Puschner et al. 2010), research has not captured interactions in which consumers regularly initiate conversation in treatment decision making (Fukui et al. 2013). This apparent lack of consumer engagement implies an important role for providers to explicitly welcome the consumer as a partner in the decision-making process. This notion is consistent with recommendations by Braddock et al. (1997, 1999, 2008) that a fundamental component of SDM should be explicit discussions about either the consumer's role in decision-making or exploration of consumer preferences along with the clinical issue or nature of the decision. Even for the most basic decisions (e.g., changing the timing of a medication), there should be some discussion of the consumer's role in decision-making (Elwyn et al. 2005).

Another important component of SDM is information sharing and seeking (Puschner et al. 2010). Much information exchange is rooted in scientific evidence and a provider's clinical experience. This type of information includes identification of clinical issues, available treatment options, pros and cons of treatments under consideration, and uncertainties associated with treatment options (Braddock et al. 1997, 1999, 2008). The information should be up to date, relevant to consumers' situation, and shared in an understandable manner. Prior studies have shown that complex decisions, depending on the level of risk and uncertainty, generally require more information sharing and increased need for SDM (Bhugra, Easter, Mallaris, Gupta 2011; Braddock et al. 1999; Fukui et al. 2013; Whitney, McGuire, McCullough 2004).

Finally, discussion of consumers' preferences and values should be central in SDM (Baker et al. 2013; Braddock 2013; Institute of Medicine 2006; Substance Abuse and Mental Health Services Administration 2010). Although treatment options should be rooted in scientific evidence and clinical experience, options are often accompanied by uncertainties. In some

cases, these uncertainties are related to a treatment's effectiveness; in other cases, uncertainties may be related to consumers' concerns about how the expected outcomes and side effects of a treatment in question fit into their own lifestyle, preferences, and values. Thus, incorporating the consumer's preferences for alternative options is important.

SDM tools identifying the extent to which essential elements of SDM have taken place during a psychiatric visit are important for identifying and improving best practices. Several measures have been developed to assess SDM practice, through both the consumer's and the provider's perceived experiences, as well as observations by third parties (Elwyn et al. 2001; Scholl et al. 2011; Simon, Loh, Härter 2007). However, self-report measures may not adequately capture the interactive decision-making process and may be more prone to bias than observation (Fukui et al. 2013).

We recently adapted a coding system to measure elements of SDM during a psychiatric visit using trained raters (Salyers et al. 2012) based on an existing measure – the Informed Decision Making Scale (Braddock et al. 2008). The SDM coding system rates the degree to which observable communication appears (0=absent; 1=partial; 2=complete) for nine elements of SDM: 1) consumer's role in decision-making; 2) consumer's goal/context of decision; 3) clinical issue or nature of the decision; 4) alternative options; 5) pros and cons; 6) uncertainties associated with the decision; 7) assessing consumer's understanding; 8) assessing consumer's desire for others' input; and 9) exploration of consumer preference. These elements evaluate the important aspects of SDM – empowerment (Element 1), information sharing (Elements 2,3,4,5), and preference clarification (Elements 6,7,8,9) with face and content validity (Leader et al. 2012). In addition, decisions are classified as basic, intermediate, or complex. Decisions with high medical consensus that pose little risk to the consumer are categorized as basic decisions (e.g., timing of medication dose). Decisions are considered complex when they have uncertain outcomes or high controversy in the literature, and could have extensive impact on a consumer (e.g., starting a new prescription of clozapine). Intermediate decisions fall in between in terms of medical consensus and impact on a consumer.

The nine elements of the coding system have been shown to effectively characterize the SDM process during psychiatric visits (Salyers et al. 2012). We also identified that decision complexity and consumer initiation were significant predictors of higher occurrence of SDM (Fukui et al. 2013). However, we have limited understanding of how the nine SDM elements are related to one another beyond the theoretical framework and how predictors are related to different aspects of SDM. In the current study, we sought to better understand the SDM process by examining underlying structures of the coding system and what predictors are related to those factors. A better understanding of these characteristics could enhance designing targeted interventions to improve SDM in mental health care.

## Method

### Datasets used in this study

We conducted secondary data analysis using four independently collected datasets of audio-recorded psychiatric visits. These included 1) an observational study of 40 psychiatric visits

(4 providers, with 10 consumers each) (Salyers et al. 2009); 2) a baseline assessment (prior to intervention) in a randomized control trial of CommonGround, an intervention to improve SDM (3 providers and 98 consumers) (Deegan, Rapp, Holter, Riefer 2008); 3) an observational study of 48 psychiatric visits with one provider; and 4) an observational study of 76 psychiatric visits with 3 providers. The first three studies took place in community mental health centers, and the fourth was conducted in a VA Medical Center outpatient mental health clinic. The audio-recordings were transcribed, checked for accuracy, and coded by trained raters using the SDM coding system (Salyers et al. 2012). Sixteen audio-recordings were dropped from the sample due to technical difficulties. Fifty five (22%) of the remaining 246 transcripts did not contain any clinical decisions (i.e., discussion with an explicit course of action); rather, these were predominately check-in visits concerning the consumer's progress. This left 191 transcripts in the analyses reported here. All studies were approved by the local Institutional Review Boards.

The mean age of consumers was 46.5 ( $SD = 11.4$ ); 119 (62%) were male; and 74 (39%) had a schizophrenia diagnosis. One hundred twelve (59%) identified themselves as white, 65 (34%) as African American, 5(3%) as Hispanic, and 4% as "other" (including native American and Asian). Six providers were psychiatrists and five were nurse practitioners. Seven of the providers were female. Other provider characteristics such as age, race, and length of practice experience were not available in the original datasets. The mean length of the recorded visit was 18.2 minutes ( $SD=7.4$ ); 77 (40%) had "basic decision"; 110 (58%) had an "intermediate decision"; and 4 (2%) had a "complex decision."

## Data Analyses

An exploratory factor analysis (a principal axis factoring method with promax rotation) was conducted to identify the underlying structures of the SDM coding system. Since the SDM coding system uses an ordinal scale (0=absent; 1=partial; 2=complete), a polychoric correlation matrix was used for the analysis. The number of factors extracted was determined based on scree tests, Kaiser's criterion (i.e., eigenvalues greater than one), and interpretability. Items were considered for elimination if they had low factor loadings for all factors (i.e.,  $< 0.30$ ), cross-loadings, or were too highly correlated with other items (i.e.,  $> 0.80$ ). In addition, bivariate relationships were examined to see if there were significant relationships between SDM and other variables available in the datasets (i.e., who initiated the elements in SDM, consumer demographics [age, gender, race], diagnosis [schizophrenia vs. other], length of visit, decision complexity) by accounting for the effect of providers (i.e., consumers nested within providers). SAS ver. 9.2 was used for the analyses.

## Results

The analysis resulted in a two-factor solution best describing the underlying structures of the SDM coding system after exploring potential one- and three-factor models. The rotated factor loadings are presented for interpretability [Browne 2001] (See Table 1). Kaiser's Measure of Sampling Adequacy was 0.7. We identified the first factor as "scientific discussion" – sharing and seeking scientific-based treatment options and assuring consumer's goal/context and understanding (i.e., nature of the decision, pros and cons,

uncertainties, goals/context, understanding). The second factor was identified as “preference-based discussion” – a discussion of consumer’s role in decision-making, consumer preferences, and alternative treatment options. The two factors were correlated at .27. The element “assessing consumer’s desire for others’ input” was dropped from the factor analysis because it caused an estimation problem due to a rare event (i.e., 91% did not discuss the element at all). As shown in Table 1, the mean difference between the two domains showed that scientific discussion occurred more completely than preference-based discussion ( $p<.01$ ).

In terms of correlates of SDM (See Table 2), initiation scores (indications of who initiated each element in the SDM coding system) were strongly correlated with scientific discussion but were more weakly correlated with preference-based discussion (for both consumer and provider initiation of discussion). In addition, provider initiation scores were more strongly correlated with both discussions compared to consumer initiation scores. Finally, more complex decisions (basic vs. intermediate or complex) and longer length of visit were associated with more scientific discussion ( $p<.001$ ), while preference-based discussion was only associated with complex decisions ( $p<.01$ ), but not length of visit. Given the prior finding that SDM was not related to length of visit after controlling for decision complexity using the subsets of the current data (Salyers et al. 2012), we also evaluated the partial correlation between length of visit and scientific discussion. After controlling for the decision complexity, length of visit was still significantly correlated with scientific discussion ( $r= 0.18$   $p<.05$ ).

## Discussion

This is the first study we are aware of that examined factor structures underlying observed SDM in mental health. Results revealed two factors – scientific discussion and preference-based discussion, which were fairly independent of each other, and which had different correlates. These two core components of SDM are consistent with the conceptual understanding of good quality SDM deliberation that relevant options based on scientific evidence and consumer preferences/values should be discussed (Leader et al. 2012). In addition, based on a systematic review by Makoul and Clayman (2006), these two components were the most prevalent in definitions of SDM.

Scientific discussion included the clinical issue or nature of decision, pros and cons of different treatment options, uncertainties associated with the decision, the consumer’s goal/context of decision, and assessment of the consumer’s understanding. This is consistent with Makoul and Clayman’s systematic review (2006), which identified essential and ideal elements of SDM. These authors noted that consumers and providers must first identify the nature of the decision that needs to be addressed, along with pros and cons and uncertainties associated with the decision.

In addition, two other elements loaded onto this factor. Contrary to our expectations, discussion of consumer’s goal/context of decision was associated with this factor rather than the second factor focusing more on preferences. First, given the ideal situation that information sharing should occur when it is most relevant to consumers’ goal/context, it

may be that the consumer's goal/context was more likely to be discussed while information is shared rather than when preferences are being evaluated. Second, like other chronic medical conditions (Watt, 2000), psychiatric disabilities involve long-term illness management and much uncertainty associated with the treatment decisions that impact consumers' lives. Further, psychiatric rehabilitation has placed a great value on consumer goal setting, achievement, and treatment to enhance consumer goals (Anthony and Liberman 1994; Anthony 1982; Corrigan et al. 2008). Providers should be oriented to exchange scientific information according to the consumer's goal and context. With consumer-tailored information, based upon consumer goals/context, consumer preference then can be evaluated. However, both this element and assessment of consumer's understanding loaded weakly on the scientific discussion factor. This suggests that there could be another potential factor explaining the two elements. For example, a potential third factor could involve creating a feedback loop between the two components – tailoring information and personalizing communication with consumer evaluations and preferences, which may distinguish SDM from the notion of simple information exchange or informed consent. However, the current SDM coding system (and/or sample we used) did not appear to reflect an independent third factor in our analyses.

The second factor, preference-based discussion, included discussions of consumers' desired role in making the decision, exploring preferences, and suggesting alternatives. Other studies show consumers desire a choice about the use of medications to their recovery (Curtis et al. 2010). Regardless of the scientific evidence, some medications could also be an unwanted reminder of illness and have attached social stigma for some consumers (Deegan and Drake 2006). Some consumers may prefer developing their own coping strategies, rather than taking prescribed medications or using a combination of both. These non-medication alternatives may include “self-monitoring,” “getting in a routine,” “increased activity,” “prayer,” and “seeking out support from others” (Young and Ensing 1999). These strategies are also reflected in work by Deegan (2005, 2007), who introduced the notions of “personal medicine” (self-initiated, non-pharmaceutical self-care activities) and “power statement” (reflecting the person's overarching goals for using psychiatric medication), specifically in psychiatric visits. Work such as this illustrates that there can sometimes be a wide gap between provider judgment and consumer preferences (e.g., providers may value clinical outcomes while consumers may value long-term side effect and quality of life) (Mühlbacher and Juhnke 2013), making SDM even more important. Notably in our samples, preference-based discussion occurred less completely than scientific discussion.

While we have identified two core SDM domains, in somatic medicine, the OPTION scale – another reliable scale to code observed SDM during medical visits (Elwyn et al. 2003; Elwyn et al. 2005) – was found to have a single factor structure based on a factor analysis (Gagnon et al. 2010). The OPTION scale and SDM coding system contain many elements in common (Weiss and Peters 2008) and are conceptually similar (Elwyn et al. 2001). However, given the lack of correlation between overall scores on the two scales (Weiss and Peters 2008), they may be tapping into different domains at the construct level. Weiss and Peters (2008) discussed that some elements of SDM – with more specific and clearer concept – may be easier to capture than others. It is possible that the essential elements could be differently captured and vary with context (Leader et al. 2012). Our findings may



reflect characteristics of SDM in mental health, which could theoretically be different than other medical conditions.

In predictive analyses, initiation of elements by both providers and consumers was weakly correlated to preference-based discussion compared to scientific discussion. It also appears that, for both scientific and preference-based discussions, provider initiation may be more likely to lead to more robust discussions than when these discussions are initiated by consumers. These findings imply that, given the limited consultation time, scientific discussion tends to be prioritized during a psychiatric visit, particularly when the SDM elements are initiated by providers. This provider-initiated conversation could also result in or could be result of the lower consumer initiation (see Table 2).

Further, as decision complexity increased, both scientific discussion and preference-based discussions occurred more completely. Complex decisions involve greater uncertainty, which should necessitate sufficient exploration of the evidence for the treatment in question. Complex decisions with high uncertainty should also elicit more discussion related to consumers' preferences.

Finally, even after controlling for the decision complexity, longer length of visit was significantly associated with greater scientific discussion. In our other analyses (Fukui et al. 2013; Salyers et al. 2012) using the subsets of the current data found that controlling for complexity, SDM was not related to length of visit. However, those studies did not examine the different factors of SDM. Information sharing may require more time despite the level of complexity. On the other hand, preference-based discussions were not related to length of visit. If these findings replicate, this may alleviate concerns providers have about adding to the length of the visit by spending more time on preference-based discussions.

Given the available data (combined samples from community mental health center and VA) and exploratory nature of the study, the findings may have limited generalizability and future examinations will be needed. We also lack information on other potentially important variables, such as length of relationship with the provider, education level, etc. Lastly, the item "assessing consumer's desire for others' input" was dropped from the analysis, but the functioning of the item in this study may reflect the sample – 91% did not discuss the element. Given that the role of formal and informal support with the long-term commitment could be important in SDM (Watt 2000; Woltmann and Whitley 2010), this item should not be devalued based solely on the results of this study.

In spite of the limitations, this study's findings provide a framework for understanding the underlying characteristics of SDM in mental health. Information sharing includes discussions on the scientific evidence of treatment options according to the potential impact on the consumer's life and consumer understanding. Discussion/evaluation of consumer preferences on the treatment options is also a core component of SDM. SDM is deeply rooted in context, both in terms of treatment history and the larger context of the consumer-provider relationship (Matthias, Salyers, Frankel 2013). As a result, different elements of SDM may be present to varying degrees, depending on the situation. Enhancing providers' understanding of the core factors of evidence-based and preference-based discussion

underscore the need for providers to engage consumers with mental illness in SDM when making treatment decisions.

## Conclusions

The development of psychiatric medication was a breakthrough in mental health history, and improved adherence to prescribed medication has been a major focus of practice and research. However, the recovery movement has highlighted that medications should not control or determine people's lives. The incorporation of consumers' voices and preferences is an important characteristic of SDM and is highly consistent with recovery-oriented mental health treatment (Baker et al. 2013). Our study has identified two important domains of SDM— scientific and preference-based discussion—that may guide providers when engaging consumers in decision-making in relation to medications.

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**Table 1**

Result of factor analysis and mean difference between factors

	Factor1	Factor2	Mean Difference
Factor 1: Scientific discussion			$t(190)=2.68, p<.01$
Discussion of the pros and cons	0.868	0.020	
Discussion of the clinical issue or nature of the decision	0.789	-0.153	
Discussion of uncertainties associated with the decision	0.727	0.143	$M=1.23 (SD=.44)$
Discussion of consumer's goal/context of decision	0.380	0.032	
Assessment of the consumer's understanding	0.307	0.154	
Factor 2: Preference-based discussion			
Discussion of the consumer's role in decision making	-0.168	0.690	
Discussion of the alternatives	0.250	0.575	$M=1.13 (SD=.47)$
Exploration of consumer preference	0.263	0.369	

Note: Mean score range (Factor 1 and Factor 2) is 0–2

**Table 2**

Correlations and t-tests between SDM and other variables with standard errors corrected for the consumer-provider nested effect

	Scientific discussion	Preference-based discussion
Provider Initiation Score ( $M = 4.99$ [ $SD=2.07$ ])	$r = .61^{***}$	$r = .36^{***}$
Consumer Initiation Score ( $M = 1.92$ [ $SD=1.44$ ])	$r = .37^{***}$	$r = .24^{***}$
Consumer Age	$r = -.02, p = .81$	$r = -.02, p = .78$
Length of Visit	$r = .29^{***}$	$r = .01, p = .86$
Consumer Gender (male = 1)	$t(179) = 1.34, p = .18$	$t(179) = .40, p = .69$
Consumer Race (white = 1)	$t(179) = -.59, p = .55$	$t(179) = .61, P = .54$
Consumer Diagnosis (schizophrenia = 1)	$t(179) = -.61, p = .54$	$t(179) = 1.52, p = .13$
Type of Decision (intermediate/complex = 1)	$t(179) = 7.82^{***}$	$t(179) = 3.20^{**}$

\*  
 $p < .05$ ,

\*\*  
 $p < .01$ ,

\*\*\*  
 $p < .001$